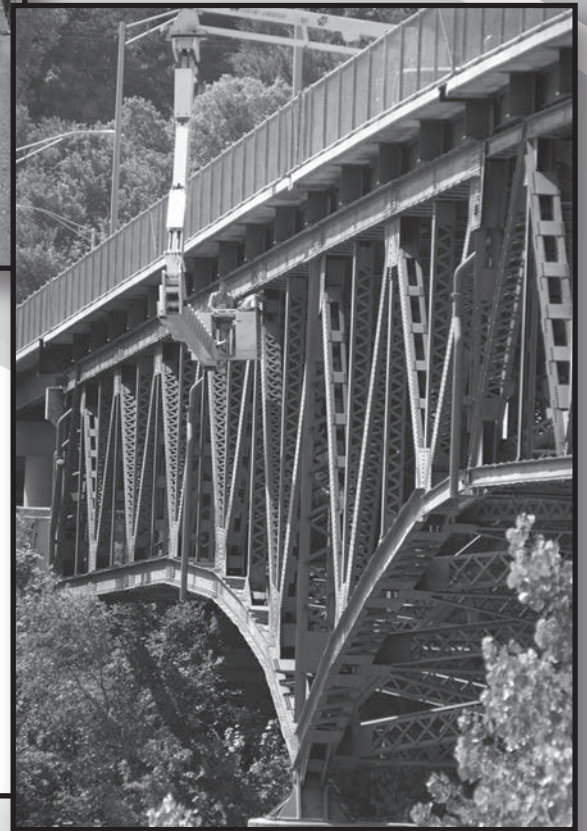


# Project Selection Criteria



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## PROJECT SELECTION CRITERIA

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Projects in the STIP are created from various levels of government (city, county, and state). Consequently, they are also created from many different processes and criteria. The criteria described below were those used by KDOT when the projects currently programmed in FFY 2013-2016 and listed in this document were selected. KDOT has a legislatively approved 10-year transportation program in place, Transportation Works for Kansas (T-WORKS). The program was authorized by the state legislature in May 2010 and is for the SFY 2011-2020. T-WORKS primary areas of focus are:

- Preservation of the highway system that is ranked as the nation's best
- A multi-modal approach to meeting transportation needs with increased funding to Public Transit, Rail and Aviation programs
- The leveraging of transportation to further the state's economic goals

Under T-WORKS, road and bridge construction projects are categorized into four core groups or programs: Preservation, Modernization, Expansion and Local Construction. The modernization and expansion projects selected for this program were announced jointly

by the Governor of Kansas and the Secretary of Transportation in June 2011. At the direction of the legislature and as outlined in the T-WORKS program, the project selection for this program is on a two-year rolling schedule. This means the SFY 2013 and 2014 projects will be selected and programmed during this STIP. By making selections on a rolling two-year basis, KDOT has increased flexibility to respond to economic impacts or opportunities as they arise. Due to timing, not all selected 2014 projects may be programmed at the time of the STIP development. These projects will be added to the STIP through the amendment process. Additionally, with a rolling 2-year selection process many of the 2015-2016 projects will be selected and announced later. Therefore, the 2015-2016 projects listed in this STIP are only those that have already been committed.

While the approval of T-WORKS is of great benefit, the federal transportation program remains uncertain, although the passing of a two-year federal transportation act- MAP-21 does allow for limited planning. The magnitude of the state program is greatly impacted by the potential lack of consistent, long-term federal funding and makes planning extremely dif-

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difficult for years beyond the current act. Until a comprehensive, long-term federal program is passed, the uncertainty remaining in federal funding limits the number of new projects KDOT undertakes. In this period of uncertainty, KDOT continues to develop plan production projects. Thus, when long-term federal funding is in place the agency will be ready with projects that are ready, or are nearly ready, for construction.

In 2008 Kansas adopted a Long Range Transportation Plan (LRTP) which has the three guiding principles of preserving the transportation system, making travel safer, and supporting economic growth. These principles were developed with the input from hundreds of transportation stakeholders during an 18-month process. Today these guiding principles provide the framework for KDOT's day-to-day decision-making process and are embodied by the projects in this STIP.

### — PROJECT SELECTION — (An Expanded Process)

One of the most significant changes in T-WORKS is the manner in which projects are selected. In the previous program, the Comprehensive Transportation Program (CTP), project selection was based solely on engineering factors. In T-WORKS, the economic impact of a project and local input are considerations as well as engineering factors.

KDOT categorizes highway construction projects into four broad programs— **Preservation** for projects that take care of what is already in place (pavement rehabilitation and reconstruction and bridge repairs and replacements); **Modernization** for projects that improve safety by improving the existing roadway (shoulder improvements, flattening hills, straightening curves, and improving interchanges); **Expansion** for projects that add to the existing system (new lanes and interchanges); and **Local Construction** for projects on county and city roads. Within each of these major programs are funding and/or project-type groups that separate the projects into more specific groups or subcategories.

In the past, KDOT has primarily relied upon priority formulas or other data-driven processes to select projects for inclusion in the transportation programs. While this system worked well to select preservation-type projects, it was not as successful for selecting expansion and modernization projects. In addition, since only engineering factors were considered in the priority formulas, other considerations that stakeholders and Kansans felt were important did not factor into the selection process.

Several important planning and policy efforts, including development of the statewide Kansas Long Range Transportation Plan (LRTP) in 2007/8 and the subsequent creation of the T-LINK Task Force (“Transportation-Leveraging Investments in Kansas”) in mid-2008, have helped KDOT set a policy direction for

choosing transportation projects that is built on the lessons learned from the CTP era. KDOT has developed an expanded process for selecting highway projects that is responsive to the direction set in the LRTP and by the T-LINK Task Force. In addition, this process fulfills the requirements specified by the T-WORKS legislation.

Under the new process crafted by T-LINK – which is still evolving – instead of relying solely on engineering factors, regional priorities and potential economic impact were incorporated into project selection. This new selection process was piloted by KDOT in selecting major highway construction projects for T-WORKS. Proposed projects are scored based on how well a project addresses relevant criteria, such as engineering needs, regional priorities identified at local consult sessions across the state, and support for economic development.

The following chart illustrates the initial recommendation from the task force on how the three criteria are to be weighted among the program categories. To aid in assessing potential economic impact, the agency is also piloting a computer modeling package that estimates the increase in jobs, income and economic output for a region due to a transportation improvement.

The information from the modeling package will be used in conjunction with information gathered by KDOT’s area engineers from local officials to

Pilot Project Selection Criteria				
	Engineering Factors	Regional Priorities	Economic Impact	Other
Preservation	100%	-	-	
Modernization	80%	20%	-	
Expansion	50 %	25%	25%	
Local Construction				100 %

determine economic impacts. The state long range plan, MPO plans, and local entity plans, along with local consult meetings will be used to determine regional priorities. By employing these selection criteria, KDOT will ensure that the projects chosen meet our LRTP guiding principles, fulfills the goals of T-LINK and meets the requirements of the T-WORKS legislation.

In addition to the state projects, there are local projects on county and city roads that have their own selection process. This process is coordinated at KDOT by the Bureau of Local Projects (BLP) and is discussed in greater detail in the Local Construction Program section.

**— PRESERVATION —**  
(Taking care of what we have)

The first major program category in T-WORKS is the Preservation program. The objective of this program is to protect the public’s investment in its highway system by preserving the “as built” condition as long as possible. Without proper maintenance, the cost for major repairs and/or replacement at a later date may be several times greater than

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the cost of timely maintenance. Projects within this category address the first principle of the LRTP of preservation. The project selection criteria for projects in this program rely entirely on engineering factors.

Projects within the Preservation program are divided into subcategories, and projects with the same subcategory share similar work types. The Preservation program includes the subcategories: Bridge and Culvert Repair (BSR & BCR), Bridge Painting (BSP), Bridge Replacement or Rehabilitation (PBR), Bridge Re-deck (PDR) and Culvert Bridge (PCR), Contract Maintenance (CMN), Emergency Repair (EMR), Interstate Basic Improvement (IRP) and Non-Interstate Basic Improvement (RIP), Interstate Resurfacing (ISR), Miscellaneous for Preservation (NHP), Non-Interstate Resurfacing (IRR), Signing (SOS), Pavement Marking (PMR), Railroad Crossing Surfacing (RRS), Signing (SOS), Signing & Lighting Repair and Replacement (SLR). Each of these subcategories is described in more detail on the following pages.

### **Bridge and Culvert Repair (BSR & BCR)**

The Bridge Repair and Culvert Repair subcategories are for bridge and culvert repairs of lesser magnitude than the Bridge Replacement/Rehabilitation and Culvert/Bridge Rehabilitation subcategories. These subcategories aim to restore the structural integrity of bridges and culverts. Bridge /culvert repair work

includes overlaying concrete decks; replacing or resetting expansion joints; resetting bearing devices; repairing abutments, piers, or girders; and repairing damage from external sources. At this time, all projects within these two subcategories are state funded.

To select bridge projects, each KDOT District, using the Bridge Management Engineer's recommended repair list, submits prioritized lists of candidate bridge and culvert projects to the Bureau of Construction and Maintenance and the Bureau of Design. Each candidate project is reviewed for the structure's condition history and latest inspection to confirm necessary repairs or replacement. Statewide lists are prioritized using such factors as maintenance effort, safety, traffic, and engineering judgment. The lists are submitted to the Bureau of Program and Project Management for review to confirm that the candidate structures are not programmed for future work under any other KDOT program. The prioritized lists are merged to create the yearly statewide repair list.

### **Bridge Painting (BSP)**

Work performed in this subcategory is funded with state funds. There are approximately 800 bridge structures on the Kansas State Highway System that require periodic painting to slow corrosion of the structural steel. These structures contain nearly 242,000 tons of structural steel. They are categorized into two groups:

**Group A:** Structures that have 10 tons or more of structural steel.

The Bridge Management Engineer prioritizes these structures (approximately 760 bridges) according to the Bridge Inspection Manual’s “Paint Condition Rating.” The statewide prioritized list is reviewed by the Bureau of Program and Project Management to confirm that each candidate structure is not programmed for future work under any other KDOT program. Projects are then scheduled in order of priority until available funds are exhausted

**Group B:** Structures having less than 10 tons of structural steel.

Each District is responsible for the painting of these structures (approximately 40 bridges statewide).

**Bridge Replacement/ Rehabilitation (PBR)**

The Bridge Replacement and Rehabilitation subcategory is designed to replace or rehabilitate sub-standard bridges. Sub-standard bridges are those in a deteriorated condition or with deficiencies in load-carrying capacity, width, or traffic service. Projects within this subcategory are funded with a combination of federal and state funds.

Bridge projects are selected using the Bridge Priority Formula. The formula was developed by KDOT and Woodward-Clyde Consultants in 1981 and has been modified since then to incorporate updated technology, policy direction, and

available data. A schematic of the formula follows:

<b>Bridge Priority Formula</b>		
<b>(Attributes / Adjustment Factors)</b>		
		<b>Adjustment Factors</b>
<b>Attribute (Need Value)</b>	<b>Rel. Weight</b>	<b>AADT<sup>1</sup></b>
Bridge Width (Driver Exposure Attribute)	0.222	0 to 1
Deck Condition	0.169	0 to 1
Structural Condition	0.359	0 to 1
Operating Rating	0.250	0 to 1
<b>Sum of All Weights</b>	<b>1.00</b>	
<b>1 Average Annual Daily Traffic-</b> The number of vehicles per day on a roadway segment averaged over one.		

**Bridge Re-Deck and Culvert Rehabilitation (PDR & PCR)**

The Bridge Re-deck subcategory addresses bridges where the bridge superstructure and substructure are in satisfactory condition, but the bridge deck is deteriorated to the point that a Bridge Repair type project would not be adequate. The Culvert Rehabilitation subcategory addresses culverts that are beyond the scope of a Culvert Repair project, but do not yet qualify as a Bridge Replacement /Rehabilitation project. Projects in these subcategories are usually funded using state funds.

Each District, using the Bridge Management Engineer’s recommended repair list, submits prioritized lists of candidate projects to the Bureau of Design. Each candidate project is reviewed for the structure’s condition history and

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latest inspection to confirm necessary repairs or replacement. Statewide lists are prioritized using such factors as maintenance effort, safety, traffic, and engineering judgment. The lists are submitted to the Bureau of Program and Project Management for review to confirm that each candidate structure is not programmed for future work under any other KDOT program. The prioritized lists are then merged to create the yearly statewide repair list.

### **Contract Maintenance (CMN)**

Maintenance activities are performed to offset the effects of weather, deterioration, traffic wear, damage, and vandalism. Eligible projects are those that KDOT is not adequately staffed or equipped to perform. Due to the diverse types of actions and/or geographic location, contracting for the service is the most cost-effective approach for the agency. These projects are funded using state funds.

Selection is based on priority as seen from a statewide perspective. Basic criteria for contract maintenance projects are: 1) inability to perform necessary actions with existing maintenance forces; 2) ineligibility for other maintenance programs; 3) unforeseen (generally the result of weather or traffic conditions). Projects are selected on the basis of statewide need for corrective action, rather than selection based on a balanced distribution between districts.

### **Emergency Repair (EMR)**

State funds are reserved annually for emergency repairs that occur as the result of accidents or weather-related disasters. Allocation of these funds is authorized by the State Transportation Engineer as events occur that warrant the need.

### **Interstate Basic Improvement and Non-Interstate Basic Improvement (RIP & IRP)**

Interstate and Non-Interstate Basic Improvement projects are projects that involve pavement rehabilitation or replacement but do not include wider shoulders, added passing or through lanes, or intersection/ interchange improvements. Projects within these subcategories are funded with a combination of federal and state funds.

These projects are selected using the pavement condition-related attributes of the Non-Interstate and Interstate Priority Formulas. For additional discussion of the formulas, refer to the Modernization section of Project Selection Criteria.

### **Interstate Resurfacing (ISR)**

Approximately 20 center-line miles of divided Interstate roadway (40 miles of two-lane pavement) are resurfaced or repaired annually through the Interstate Resurfacing set aside program. Input from the Pavement Management

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System is used to decide which sections of interstate are to be resurfaced. Generally, projects in this subcategory are state funded.

### **Miscellaneous for Preservation (NHP)**

This subcategory was established in SFY 2012. This subcategory is reserved for atypical preservation projects that occasionally arise. The scopes of work for projects in this subcategory do not fit into the standard preservation subcategories. However, the work and project are preservation related and the desire is to use preservation program funding. These projects are usually state funded.

### **Non-Interstate Resurfacing (IRR)**

Approximately 1,200 to 1,400 miles of two-lane non-Interstate pavement are re-surfaced or repaired annually through this state set aside funded program. Since most of these projects are selected on an annual basis, projects for this group appear only in the first year of the STIP. The program's intent is to maintain non-Interstate pavements in adequate condition and keep ride ability at an acceptable level. These projects are selected by using the Pavement Management System (PMS). PMS is an integrated set of procedures that were developed by KDOT and Woodward-Clyde Consultants. It recommends pavement maintenance and rehabilitation strategies on both a network and a project level.

Currently, projects within this subcategory are state funded.

### **Pavement Marking (PMR)**

This subcategory was established in 1996 to address pavement marking necessary due to pending new federal requirements for minimum retro reflectivity of pavement markings. Improvements in this category utilize high-performance, long-life pavement marking materials. Efforts are also made to identify those marking materials with wet-weather retro reflectivity. This program is limited to projects that do not have high-performance markings included under any other KDOT program.

Projects are selected by Bureau of Transportation Safety and Technology staff based upon a roadway's traffic volumes, past performance of marking material, geometry, surface condition, surface type, crash history, and, in the case of new marking materials, the research benefit. Projects within this subcategory are generally funded with 100 percent federal funds.

### **Railroad Crossing Surfacing (RRS)**

The Rail Road Crossing Surfacing subcategory was established in SFY 2000 to address projects that are at-grade highway/railroad crossing approaches and surface upgrades. Eligible crossings are rural State Highway System Crossings and State Highway System City Connecting Link crossings in cities with



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populations up to 2,500.

Projects are selected from applications for crossing surface improvement projects submitted by railroad companies and KDOT district personnel. Project scopes include all necessary materials and activities required for long-term crossing surface and approach improvements. These projects are funded with 50 percent state and 50 percent railroad company monies.

### **Signing (SOS)**

Established in 1996, this subcategory addresses necessary sign replacements on the State Highway System in response to new federal requirements for minimum retro reflectivity of signs. This program schedules sign replacements based upon highway route mileage statewide and the total mileage of all the routes in each of KDOT's six districts for that year. Excluded from this program are signs that are scheduled for repair under other state projects in the same year. This program also excludes any signs that were replaced within seven years of the scheduled date of the replacement project. Projects within this subcategory are generally funded with 100 percent federal funds.

### **Signing & Lighting Repair & Replacement (SLR)**

This is a new subcategory created in SFY 2012 to address the need for sign-

ing and light structure maintenance across the state. The projects in this set aside are funded 100% with state funds. Currently, there are approximately 2,270 signing/lighting structures under KDOT's responsibility. The role of this program is to enable KDOT to monitor and prioritize the maintenance of these structures.

Every four years structure inspections are performed with the most recent inspection in 2009. Based upon the observations made during the inspection, ratings are assigned to each structure. Using this information, the Signing & Lighting Engineer then compiles the ratings and prepares a prioritized list recommending structures for replacement or repair. Projects are programmed from this list using the available set aside funds.

### **— MODERNIZATION — (Improving safety & existing roadways & structures)**

The Modernization program category is the second major component of T-WORKS and addresses the LRTP principle of safety. Projects in this program category aim to improve existing roadways and enhance safety by flattening hills, adding shoulders, straightening curves and improving intersections. Under T-WORKS a combination of engineering factors and regional priorities were applied to select projects in this program category. The majority of the Modernization program projects to be undertaken in T-WORKS were selected

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and announced by the Governor of Kansas in June 2011.

The following subcategories are included in this program: Corridor Management (COR), Highway Lighting (LTG), Interstate Roadway Geometric Improvements (IRI), Non-Interstate Roadway Geometric Improvements (RIM), Resurfacing with Improvements-Practical Design (IRS), KCC Railroad Crossing Projects (KCC), Miscellaneous for Modernization (MPR), State Safety Projects (SAF) and Scenic Byway (SBW).

### **Corridor Management (COR)**

The Corridor Management set aside program was created to address the growing need for KDOT, cities, and counties to jointly manage transportation corridors, particularly in high-growth developing areas. This fund is divided into two groups with two-thirds of the available funding going to a project group and one-third to a contingency group. To be eligible for either group of funds, a corridor must be designated in the district plan, there must be a partnering agreement between the Secretary, city, and county, and there must be a binding corridor master plan in place.

The project group of subcategory funds is designed to assist newly developing areas in meeting the master plan or to retrofit established areas to master plan standards. Projects are solicited annually and require a minimum 33 percent

local match for state monies. Additionally, projects in this group have a per-project maximum of \$0.25 million.

The contingency group of subcategory funds is designed to address rapidly developing areas or sites where transportation infrastructure changes must be made to better accommodate changes in demand. This fund requires a minimum 50 percent local match for state monies. Additionally, projects in the contingency group have a per-project maximum of \$0.20 million. Additionally, in some special cases, Corridor Management funds may be used for advance right-of-way acquisition.

### **Highway Lighting (LTG)**

Since lighting is beneficial to the safety and operation of the highway system, this subcategory was created in FY 2000 to address highway lighting. Bureau of Transportation Safety and Technology using the engineering factors of the roadway's volume and nighttime crash history along with consideration of existing regional priorities in the area of proposed projects make project selections. To receive funding projects selected for this program may not be included under any other KDOT program. Projects are scheduled until all available lighting funds are exhausted and are generally funded with 100 percent federal funds. (At some locations across the state, lighting is installed by the local public agency (LPA) after obtaining a highway permit. In general, when the

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LPA elects to install lighting, the LPA is responsible for the cost of installation, maintenance, and operation.)

**Interstate Roadway Geometric Improvements/ Non-Interstate Roadway Geometric Improvements/ and Resurfacing with Improvements (RIM, IRI & IRS)**

Interstate and Non-Interstate Roadway Geometric Improvements projects are major highway improvements that, in addition to pavement rehabilitation or replacement, include wider shoulders or intersection improvements but do not include passing or through lanes or interchanges. Resurfacing with Improvements projects are pavement rehabilitation projects with modest shoulder improvements using practical improvement principles. Projects within these subcategories are usually funded with a combination of federal and state funds.

Roadway projects are selected using the Non-Interstate and Interstate Priority Formulas, which supply the engineering factors, along with regional priorities in the area of the proposed projects as determined through local consult meetings. The formulas used for the engineering factors were developed by KDOT and Woodward-Clyde Consultants in 1981 and have been modified since to incorporate updated technology, policy direction, and available data. Schematics of the formulas are on the following page.

**KCC Railroad Crossing (KCC)**

Prior to 1999, this program was administered by the Kansas Corporation Commission (KCC), since then KDOT has managed the program. This is a state funded program supplemented with railroad company funds. Eligible crossings in this program are crossings that do not meet the federal funded program eligibility requirements, but if updated would improve safety. To be considered for this program, LPAs must submit potential crossings for funding. Projects are programmed, as funds are available in the order requests are made.

**Safety Projects (SAF)**

This subcategory provides for improvement of intersections or spot locations where major improvement is not required. The addition of left-turn lanes, pavement resurfacing, traffic signals, signing, and pavement marking provide cost effective solutions to reducing crashes at these locations.

The Bureau of Transportation Safety and Technology conducts studies on the physical and operational characteristics of high-crash locations. These studies:

- 1) identify the reason the particular location is being reviewed;
- 2) identify pertinent conditions;
- 3) identify concerns;

<b>Non-Interstate Priority Formula (Attributes / Adjustment Factors)</b>										
		<b>Adjustment Factors</b>								
		<b>Accident Rate</b> (See below)	<b>Posted Speed</b> (See below)	<b>Facility Type</b>		<b>Shoulder Type</b>		<b>Route Class</b> (See below)	<b>AADT<sup>1</sup></b> (See below)	
<b>Attribute (Need Value)</b>	<b>Relative Weight</b>	*	*	Divided	Undivided	Stabilized	Unstabilized	*	*	
<b>Driver Exposure Attributes</b>	No. Of Narrow Structures Per Mile	0.086	0 to 1	0 to 1					0 to 1	0 to 1
	Shoulder Width	0.089	0 to 1	0 to 1	0.54	1.0	.0607	1.0	0 to 1	0 to 1
	No. Of SSSD <sup>2</sup> Per Mile	0.069	0 to 1	0 to 1					0 to 1	0 to 1
	Lane Width	0.101	0 to 1	0 to 1	0.5	1.0			0 to 1	0 to 1
	No. Of SHC <sup>3</sup> Per Mile	0.099	0 to 1	0 to 1					0 to 1	0 to 1
Volume/ Capacity (Maximum Default Value = 1.15)	0.091							0 to 1	0 to 1	
Commercial Traffic (Maximum Default Value = 725)	0.065			.0376	1.0	0.519	1	0 to 1	0 to 1	
Rideability	0.088							0 to 1	0 to 1	
Pavement Structural Evaluation (PSE)	0.208							0 to 1	0 to 1	
Observed Condition	0.104							0 to 1	0 to 1	
<b>Sum of All Weights</b>	<b>1.00</b>									

<b>* Non-Interstate Priority Formula (Adjustment Factors)</b>							
<b>Accident Rate</b>	<b>Adjustment Factor</b>	<b>Posted Speed</b>	<b>Adjustment Factor</b>	<b>Route Class</b>	<b>Adjustment Factor</b>	<b>Capacity – Adjusted AADT<sup>4</sup></b>	<b>Adjustment Factor</b>
High	1.0	≥ 55 MPH	1.0	A	1.0	20,000	1.0
Medium	0.858			B	0.9	10,000	0.925
Low	0.734	≤ 55 MPH	Varies from	C	0.7	6,000	0.895
			0 to 1	D	0.5	2,000	0.865
				E	0.3	0	0.850

<b>Interstate Priority Formula (Attributes / Adjustment Factors)</b>							
		<b>Adjustment Factors</b>					
		<b>Facility Type</b>		<b>Shoulder Type</b>		<b>Route Class</b> (See below)	<b>AADT<sup>1</sup></b> (See below)
<b>Attribute (Need Value)</b>	<b>Relative Weight</b>	<b>Divided</b>	<b>Undivided</b>	<b>Stabilized</b>	<b>Unstabilized</b>		
Commercial Traffic	0.140	0.376	1.0	0.519	1.0	0 to 1	0 to 1
Rideability	0.189					0 to 1	0 to 1
Pavement Structural Evaluation (PSE)	0.447					0 to 1	0 to 1
Observed Condition	0.224					0 to 1	0 to 1
<b>Sum of All Weights</b>	<b>1.00</b>						

<sup>1</sup> **Average Annual Daily Traffic-** The number of vehicles per day on a road -way segment averaged over one year.

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- 4) identify possible causes of the concerns
  - 5) identify possible solutions;
  - 6) estimate cost of each possible solution;
  - 7) rank each solution on the basis of engineering judgment;
  - 8) consider effects on like or similar areas (uniformity factor);
  - 9) provide benefit/cost analysis for each solution;
  - 10) review regional priorities for projects under consideration;
  - 11) recommend action.

Once identified, projects are ranked in descending order by average annual net return. KDOT determines the average annual net return for each project by subtracting the average annual cost from the average annual benefit. First priority is given to the project with the highest average annual net return and with overlapping regional priority.

Exceptions to this order are sometimes necessary because city matching funds are unavailable, future projects encompass the selected project location, approximate locations are grouped into one project, or several smaller projects are combined resulting in a total net return larger than the return for one project. The projects in this subcategory are usually state funded and projects are scheduled until the available funds are exhausted.

### **Kansas Byways (SBW)**

Currently, in Kansas there are eleven designated byways- eight scenic, two

of which are National Scenic Byways and three historic byways. The byways are located in 32 counties and cover approximately 647 state and county road miles.

In 1992, Kansas launched the Scenic Byways (name later changed to Kansas Byways) program with a grant from FHWA. Implementation of the program was achieved over several years and was accomplished in three phases. Phase 1 focused on the initial development of program guidelines and the establishment of a “pilot scenic route” that served as model for the process for future byways. Phase 2 was a multi-year implementation period during which roads were nominated, evaluated, designated and signed. Now in the third phase, the focus of the program is on the long-term maintenance, management and enhancement of the byways selected. Funding for this program is varied and includes state, local and federal sources. Federal funding is accomplished through the submittal of grant applications and the subsequent federal approval and award of the request. Future federal funding for this subcategory is uncertain but funding does not appear to be included in MAP-21. A decision about scenic byways continuation will be made in October 2012 after the details of MAP-21 are known.

### **— EXPANSION — (Adding something new)**

T-WORKS’s third program category of projects is Expansion. Expansion

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projects add new lanes or interchanges, enhance driving by relieving congestion and improving access, enhance economic development, and substantially improve safety. The LRTP principles of economic expansion and safety are the focus of projects within this program category.

The majority of the expansion projects were announced along with the modernization projects by the Governor of Kansas and the State Transportation Secretary in early June 2011. With the exception of the economic development subcategory of projects, which will be reviewed and selected on an on-going basis during T-WORKS, most of the expansion projects have been selected.

KDOT's approach for selecting Expansion program projects relied on the new local consultation process, implemented under T-WORKS. This new approach used three factors, rather than relying solely upon engineering formulas like prior transportation programs. The three factors were engineering formulas, regional priorities and economic impacts. In addition to considering these three factors, KDOT also considered the money available through T-WORKS, the money already invested in projects (e.g. design engineering, right of way, etc), and the local funding available.

Projects in the program are grouped into the following subcategories: Economic Development (EDP), Interstate Capacity Improvement (IRC), Intelligent Transportation Systems (ITS), Non-Interstate Capacity Improvement (RIC), Local Partnership Railroad Grade Separation (RSL),

Railroad Grade Separations (RSP), Enhancement Bypass Construction (SEB), Enhancement Corridor Improvement (SEC), and Enhancement Interchanges /Separations Improvement (SEI).

### **Economic Development (EDP)**

Economic development projects are projects that help spur financial growth. A key priority identified in the LRTP, local consultation meetings and T-WORKS was the need for transportation projects to be linked to the state's economic priorities. To assess the potential impact of proposed economic development projects, KDOT is piloting a computer modeling package- the Transportation Economic Development Impact System (TREDIS). TREDIS estimates the increase in jobs, income, and economic output for a region due to a transportation improvement. In addition to scoring well in the TREDIS analysis, desirable projects are those that align with regional priorities of an area, have the recommendation of KDOT staff and the endorsement of an external Economic Advisory Panel.

To increase flexibility during the 10-year period of T-WORKS, proposed economic development projects will be reviewed and selected on an ongoing basis. In this way a source of funding will be available over the next ten-years as desirable opportunities arise. Generally, these projects are funded using a combination of state and local funding.

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### **Interstate Capacity Improvement & Non-Interstate Capacity Improvement (RIC & IRC)**

Interstate and Non-Interstate Capacity Improvement projects are major highway improvements that include passing or additional through lanes or interchanges in addition to pavement rehabilitation or replacement and geometric improvements. Projects in these categories will be selected using the new process piloted by KDOT in selecting major highway construction projects for T-WORKS. Refer to the section "Project Selection Pilot" at the beginning of the Project Selection Criteria for a detailed discussion of project selection. Projects in these two subcategories include projects that prior to T-WORKS were in the System Enhancement Bypass, System Enhancement Corridor Improvement and System Enhancement Interchange- Separations Improvement subcategories. Subcategory RIC & IRC projects are usually funded using a combination of federal and state funds.

### **Intelligent Transportation Systems (ITS)**

The Intelligent Transportation Systems (ITS) program was established to meet the funding needs of ITS/ technology-related projects in Kansas. The funding is available to apply technology such as advanced sensor, computer, electronics, and communications and management strategies to increase the safety and efficiency of the transportation system. The funding is available to both state and local agencies and is not necessarily limited to

agencies that are transportation oriented. ITS applications are widespread and include urban areas, rural areas, transit, and commercial vehicle operations and funding consideration is given to all areas.

The Bureau of Transportation Planning, along with the ITS Steering Committee, establishes project rankings based upon:

- 1) project support and integration risks;
- 2) telecommunication considerations;
- 3) design considerations and factors of success;
- 4) funding sources and evaluation consideration;
- 5) cost effectiveness and benefits;
- 6) local funding match percentage;
- 7) economic impact of project;
- 8) commonality with regional priorities in the area of the proposed project.

Projects are solicited annually as funding is available and selected based upon the criteria outlined above. ITS projects are generally funded with a combination of state and local funds. Recently with the passage of T-WORKS, ITS projects have been selected for SFY 2013 and annual selection is anticipated to continue with a transportation program in place.

### **Local Partnership Railroad Grade Separations & State Railroad Grade Separations (RSP & RSL)**

These two subcategories were estab-

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lished just prior to and during the CTP and functioned to replace highway railroad at-grade crossings with grade separation structures. Funding for work in these subcategories is usually from a combination of state and/or local and/or federal sources. Although there may be some projects from the CTP still being completed, these subcategories are considered inactive and were not included as part of the T-WORK program.

**System Enhancement Bypass/  
Corridor Improvement/  
Interchanges-Separations Improvement/  
Wichita Railroad Crossings  
(SEB, SEC, SEI, SEW)**

Projects in these subcategories provide bypasses around cities, substantially improve the capacity and serviceability of significant segments of the State Highway System, or provide new interchanges, improve existing interchanges, or build separation structures, which reduce congestion on the State Highway System. In the case of the System Enhancement, Wichita Railroad Crossings rail crossings in the Wichita area were improved. Funding for work in these subcategories is usually from a combination of state and/or local and/or federal sources. Currently, new projects are not programmed for construction in these four subcategories, although there may be some projects carried over from the CTP still being completed. These four subcategories are inactive and were not included in T-WORKS. Instead, under T-WORKS, the work covered by the first three categories has been absorbed into the Interstate Capacity Improvement (IRC)

and Non-Interstate Capacity Improvement (RIC) subcategories. The crossing category was not continued in T-WORKS.

**— LOCAL CONSTRUCTION —  
(City and county road improvements)**

The fourth program category in T-WORKS is Local Construction. Local Construction projects involve improvements on city or county roads. The work encompassed by this program is varied in nature with some projects being safety-oriented, while others focus on maintaining existing roadways, and still others are smaller, expansion-type projects. The funding within this program of projects is also varied, coming from a combination of state and/or local and/or federal sources. The LRTP principles of safety and preservation are the focus of projects within this program category.

As with the other programs already described, the Local Construction program is grouped into subcategories of similar work type. The subcategories are: HSIP Safety Projects-off system (HAZ), HSIP Safety Projects-on system (HES), KLINK resurfacing projects (K1R), Geometric Improvements for KLINKs (K3R), Local Fund Transfer (LFT), Local Administered projects (LOC), KDOT Administered projects (RES), HSIP Railroad Crossing Protection-on system (RRX), HSIP Railroad Crossing Protection-off system (RXR), Safe Routes to Schools projects (SRT) and Transportation Enhancement (TEX) projects. Each of these subcategories is described in more detail on the following pages.



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**City Connecting Link  
(KLINK) Resurfacing  
(K1R)**

The KLINK Resurfacing Program is a portion of the Kansas Department of Transportation's (KDOT) Local Partnership Program which is intended to improve the roadway surfacing of City Connecting Links of the State Highway System. The Bureau of Local Projects (BLP) will solicit applications for KLINK resurfacing projects for each year in which funding is available.

All cities with City Connecting Links of the State Highway System within city limits are eligible for KLINK resurfacing improvements. All City Connecting Links of the State Highway System are eligible except those on the Interstate System and fully controlled access sections on the Freeway System. The applicant must have an accounting system capable of documenting costs for all phases of a project.

KDOT will participate in the cost of construction and construction engineering at the rate of 75 percent for cities with a population of less than 10,000 or 50 percent for cities with a population of 10,000 or greater, not to exceed \$200,000 of state funds.

KDOT annually solicits requests for eligible projects by mailing applications to all eligible cities in the state. Cities requesting projects are encouraged to review the proposed projects with the KDOT District or Area Engineer or designated representative in their area before submitting

their applications. Governmental bodies within urbanized areas (populations greater than 50,000) should also submit copies of their applications to their Metropolitan Planning Organization's (MPO's). If project applications exceed available funds, projects are prioritized and selected based on pavement survey conditions.

Currently, SFY 2014 applications are being reviewed with selection anticipated to be made in the fall of 2012. Annual selection is anticipated to continue with a transportation program in place. The Secretary will announce the approved projects once the selection has been made.

**Federal Safety Projects  
(HAZ & HES)**

These federal-aid projects provide safety improvements on all federal-aid systems. The construction and construction engineering costs of projects in these two subcategories are generally funded with federal safety funds at a 90 percent federal pro rata and 10 percent local or state funding, except for certain safety improvements as listed in 23 U.S.C. 120 (c) which are eligible for 100 percent funding. The majority of the safety projects are administered by the Bureau of Transportation Safety and Technology. A small portion of projects on county roads and in cities under a population of 5,000, are administered by the Bureau of Local Projects.

KDOT has divided the state roadway systems into four categories as a basis for location analysis and funding distribution to ensure that federal safety funding

benefits all roadway systems across the state. The four categories are metropolitan, urban, rural state highways and county roads and other roadways. The chart below illustrates how KDOT allocates the total amount of safety funds available at the beginning of each federal fiscal year to each of the four categories. These category percentages are only estimates of how funds are to be distributed and actual distribution percentages may vary in any given year based on the projects selected and the ability for fund utilization within each category. Actual project selections are made based upon the priority selection process described below for each of the categories.

Jurisdiction (Location)	Population	Funding Split
N (Metropolitan)	Kansas City / Wichita	38 %
U (Urban)	Over 5,000	45 %
K & KA (Rural State Highways)	Less than 5,000	5 %
C (County Rds & Other Rdwys)	Less than 5,000	12 %
<i>(These figures are not rigid. The percentages may vary by a few points in any given year and funds that cannot be utilized in one category may be transferred to another category.)</i>		

**Identification of High Accident Locations** -For metropolitan and urban type projects-projects with a jurisdiction designation of N or U, cities are requested to submit two years of crash data for up to five high-crash locations on federal-aid routes within their areas. High-crash locations are determined and ranked by descending equivalent-property-damage-only (EPDO) accident rate. The top 50 (approximately) are considered high-crash locations warranting further analysis.

Projects selected in these categories are financed with federal and local funds.

For rural state highway projects-projects with a jurisdiction of K or KA, a comparison is made between the actual crash rate of the location and the statewide average rate for similar highways, to determine whether the location is a high-frequency crash location. The Bureau of Transportation Safety and Technology conducts county-wide road safety audits. From these audits and from traffic studies, high-crash locations are established. High-crash locations are ranked in descending EPDO crash rate order. The top ten are considered high-crash locations warranting further analysis. Projects in jurisdiction K or KA on the rural State Highway System are financed with federal and state funds.

County roads and Other roadways projects are designated with a C jurisdiction and are financed with federal and local funds rather than state funds. These projects are selected by LPAs and are subject to Federal Highway Administration approval. They are administered in KDOT by the Bureau of Local Projects.

**Prioritization** - The identified high-crash locations are prioritized on the basis of the average annual net return for each location. The average annual net return is a dollar amount obtained by subtracting the average annual costs from the average annual benefits. First priority is given to the location with the highest average annual net return. Remaining projects are scheduled in descending order until funds are exhausted. Exceptions to this order of

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selection may occur when a LPA does not have the necessary matching funds, a future project is planned that encompasses the selected location, a grouping of proximate locations into one project, or the combining of several smaller projects yields a total net return larger than one project.

### **Geometric Improvement (K3R)**

The Geometric Improvement (GI) Program is a highway-constructing program intended to improve geometric deficiencies on City Connecting Links (KLINK's). BLP will solicit application for GI projects for each year in which funding is available. A City Connecting Link is a routing within the city limits of a city that connects a state highway through a city; or connects a state highway to a City Connecting Link or another state highway; is a state highway which terminates within such city; connects a state highway with a road or highway under the jurisdiction of the Kansas Turnpike Authority; or begins and ends within a city's limits and is designated as part of the national highway system of Interstate and Defense Highways. Geometric improvements are designed to widen pavements, add or widen shoulders or add needed turning, acceleration, and deceleration lanes.

KDOT participates in funding for projects selected as City Connecting Link Geometric Improvement Projects. The maximum KDOT contribution toward recipient projects is dependent upon the

sponsor city population. However, the maximum state participation ranges from \$700,000 to \$950,000 with the maximum participation ratio ranging from 100% to 75%.

Projects are solicited and reviewed by KDOT's Bureau of Local Projects. Before an application is submitted, cities are encouraged to review the proposed projects with the KDOT District or Area Engineer. Governmental bodies within urbanized area (populations greater than 50,000) should also submit copies of their applications to their Metropolitan Planning Organization (MPO). After submission of the application, BLP will review the proposed project's scope and estimated cost.

Applications for SFY 2015 have been solicited and onsite reviews were conducted in June 2012. The applications are currently under review and the selection process is anticipated to be completed in the fall of 2012. The Secretary will announce the approved projects once the selection has been made.

### **Local Construction Locally and State Administered (LOC, RES, LFT)**

The projects in these subcategories are varied and may have elements of each of the three state programs-preservation, modernization and expansion, but all are performed on city and county roads. Local construction projects are divided into three subcategories: LOC, for those projects administered by the LPA with federal funding; RES, for those projects with fed-

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eral funding administered by KDOT on behalf of the LPA and LFT for those projects developed without federal funding using instead the Federal Fund Exchange Program where the LPA has exchanged federal dollars for state dollars to administer local transportation projects.

In order for LPAs to qualify for LOC subcategory funding and the administration of their own federally funded non-National Highway System (Non-NHS) projects, they must meet minimum requirements established by FHWA and KDOT. These requirements are intended to ensure that projects are developed in accordance with all applicable laws, regulations, criteria, and accepted engineering practices.

KDOT administered projects, which are grouped into subcategory RES, are similar in nature to locally administered projects with the key difference being that the State lets the project to construction and oversees the work on behalf of the LPAs. Local construction projects in the LOC and RES subcategories are funded with a combination of federal and local funding with a usual funding ratio of 80 percent federal funds and 20 percent local funds. Since the LOC and RES subcategory of projects are federally funded, these projects listed either in the STIP or in the TIP when an MPO area is involved.

Projects in the third subcategory, LFT, are funded with local and state funds, with the state funds coming from an exchange of LPA federal obligation for the state funds. The exchange rate for this

program is \$0.90 of state funds for every \$1.00 of local federal obligation authority exchanged. While the LFT subcategory is included in this discussion, the subcategory is not part of the Local Construction program and does not use federal funds. As a result, LFT projects are not included in the STIP. LFT subcategory projects are referenced in this document to explain the recent decrease in the number of RES and LOC projects undertaken and the corresponding decrease in LPA projects present in the STIP. Most LPAs have elected to use the LFT program to fund the repairs on city and county roads. For more information concerning the Federal Fund Exchange Program, refer to the Program Finance section of this narrative or visit KDOT's website at <http://www.ksdot.org/burlocalproj/default.asp>.

Regardless of the funding used for repairs, LPAs select all of their projects in a similar manner using a number of criteria. Projects are often proposed because of safety concerns, the need to maintain existing facilities or structures, and community needs fueled by growth and other factors. To assist in their selection process, bridge inspection data and other management systems are available to locals to use in their decision-making processes.

The LPA is responsible for public involvement in the selection/prioritization process of projects with the public involvement for each project being determined by the complexity of the project scope. At a minimum, public involvement should include a public notice indicating

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when a governing body will be making a decision on reviewing needs, selecting projects and setting priorities for federal aid projects. As each project selected develops, additional public involvement may be warranted. The public involvement in the project development process will be in accordance with KDOT's publication "Sharing the Future, Public Involvement in the Kansas Transportation System".

After the selection and prioritization process is completed, projects are listed by priority and programmed based upon the availability of funds. For federally funded projects, these lists are the local entities' portion of the STIP and identify their prioritized road or bridge construction projects and these projects are incorporated into the TIPs or STIP as appropriate.

### **Railroad/Highway Crossing Protection (RRX & RXX)**

This federal-aid program funds protective device installation and hazard elimination at railroad/highway grade crossings on public roads. Federal-aid finances up to 100 percent of the cost of these projects. In accordance with Section 130 of the 1973 Federal-aid Highway Act, KDOT has established a state rail crossing inventory and formula to prioritize all 6,200 at-grade public crossings in Kansas.

The priority formula "hazard index" is used to rate the relative hazard potential for all crossings and is based on highway traffic, train traffic, and a warning device factors. Each year a number of the highest ranked crossings that have not been ad-

ressed in prior programs are selected for review. A preliminary review of the crossings is conducted to verify crossing inventory information.

#### **Priority Formula For Railroad Crossings**

$$\text{Hazard Index} = \text{AADT} \times T \times W$$

Where

AADT = Average Annual Daily Traffic

T = Average Trains per day

W = 0.1 for gates, 0.6 for flashing lights & 1.0 for cross bucks

Crossings from this list that pass the preliminary review are scheduled for on-site diagnostic reviews. The diagnostic review team consists of KDOT, railroad, and local government staff. This team makes recommendations for each crossing as to type of warning system, crossing surface work, approach roadway improvements, drainage improvements, and brush and timber clearing. A rough cost estimate of the recommendations is developed for each crossing.

The on-site review is sent to the local government officials who have maintenance responsibilities for the highway or roadway. When crossing projects receive funding commitments from local government, railroad, and the State, a project implementation procedure is started that leads to improvements at the crossing. With the implementation of prior federal transportation acts, KDOT now utilizes 100 percent federal funding for these railroad/highway crossing safety projects.

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In conjunction with the United States Department of Transportation's national highway/railroad crossing safety initiatives, KDOT is also addressing railroad corridor highway/railroad crossing safety projects. For corridor project approval there must be a reasonable number of highway/railroad crossing closures. The highest priority highway /railroad crossings in the corridor are improved with active flashing light and gate signal systems. Projects in these two subcategories are reviewed and selected on a yearly basis. Currently projects for SFY 2013 & 2014 have been selected and programmed. However, additional projects may still be programmed throughout the year and these projects, if any, will be amended to the STIP when programmed.

### **Safe Routes to Schools (SRT)**

Safe Routes to School (SRTS) is a federal reimbursement program that was authorized under SAFETEA-LU. This program is currently funded with 100 percent federal funds. The SRTS goal is to increase the number of school children who walk or bike to school. SRTS provides reimbursements to local public authorities, school districts, and non-profit associations for projects or activities that will make walking and bicycling to school safe, enjoyable, and routine. In this subcategory, projects are selected by soliciting applications and then selecting projects from the applications submitted. To qualify for consideration applications must meet one of the following three criteria:

- 1) Project provides for infrastructure such as improvements to pedestrian and bicycle crossings, sidewalks, traffic calming, on- and off-street bicycle facilities, secure bicycle parking, and traffic diversions.
- 2) Project provides for non-infrastructure activities such as public awareness campaigns and outreach to press and community leaders, establishing walking school buses and bike trains, traffic education and enforcement, student training on bicycle and pedestrian safety, and funding for training volunteers and staff.
- 3) Project provides for plan development of safe routes to schools, with possible future funding to implement the plan.

Applications were solicited from local public authorities, school districts, and non-profit associations in the spring of 2012. Potential projects and activities will be evaluated throughout the summer and selected by August 2012. The next round of applications is anticipated to occur in the spring of 2013 for FFY 2014 projects. However, the continuance of SRTS past FFY 2013 await the details of the recently passed federal transportation act MAP-21. The details and complete impact from MAP-21 will not be known until after October 1, 2012 at which time a decision about the continuance of SRTS program will be made.

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## **Transportation Enhancement (TEX)**

Federal statute requires that a minimum of 10 percent of the Federal Surface Transportation Program funding received by the State of Kansas be reserved for Transportation Enhancement projects. Projects in this subcategory must correspond with one of the following three groups: historic, scenic and environmental, or pedestrian and bicycle facilities, and must be directly related to a surface transportation system. This program is funded based on an 80 percent federal/20 percent local match, and applicants need to be able to demonstrate their financial ability to meet their obligation.

Applications are solicited from LPAs (city, county, state, school district or other governing subdivision), evaluated and selected based on the criteria of the program. A new application cycle will open in the summer of 2012, with project selection occurring in early 2013. The funding for this application cycle was made available through continuing resolutions of the expired federal transportation bill, SAFETEA-LU. Future continuation of Transportation Enhancements will be determined after the details of the new federal transportation act MAP-21 are known in October 2012.